DOCUMENT RESUME

ED 259 109 CE 041 578

AUTHOR Gordon, Howard R. D.; Camp, William G.
TITLE Analysis of the Occupational Attainment of Agricultural Education Graduates of the High School Class of 1972.
PUB DATE Dec 84
NOTE 10p.; Paper presented at the National Agricultural Education Research Meeting (New Orleans, LA, December 1984).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Agricultural Education; Comparative Analysis; Employment Level; *Employment Patterns; Graduate Surveys; *High School Graduates; High Schools; *Outcomes of Education; *Salary Wage Differentials; *Vocational Education
IDENTIFIERS *National Longitudinal Study High School Class 1972

ABSTRACT

A study examined the effects of participation in a high school agricultural education program on occupational attainment. Using data collected in the National Longitudinal Study of the High School Class of 1972, researchers compared the employment patterns and income of 6,585 individuals who had taken at least one semester of agricultural education while in high school to those of students with no history of participation in agricultural education. On initial analysis, participation in agricultural education appeared to affect adversely the socioeconomic attainment of graduates whether they entered an agricultural occupation or not; however, when the effects of such background variables as socioeconomic background, family history, type of community, sex, and race were taken into account, the results of the analysis changed dramatically. Even when statistically significant differences in socioeconomic attainment were found, however, they were too small to be of practical significance, thus reinforcing the conclusion that participation in an agricultural education program while in high school had no practical effect, either positive or negative, on the subsequent job status attainment of graduates. Nor did number of semesters of participation in agricultural education courses have any marked influence on occupational outcomes. (MN)

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Presented to

The National Agricultural Education Research Meeting

New Orleans, Louisiana

December, 1984

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Howard R.D. Gordon

Graduate Assistant

William G. Camp

Assistant Professor

Virginia Polytechnic Institute and State University

Blacksburg, VA 24061

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ANALYSIS OF THE OCCUPATIONAL ATTAINMENT OF AGRICULTURAL EDUCATION GRADUATES OF THE HIGH SCHOOL CLASS OF 1972

Howard R.D. Gordon William G. Camp
Virginia Polytechnic Institute and State University

At a time when the critics of public education in America are increasingly vocal, it is more important than ever that agricultural education be prepared to examine itself with a view toward program improvement. One frequently used criterion for such evaluation is earnings of graduates, (Hillison, 1979 and Kotrlik, 1979). On the other hand, Warmbrod (1975) makes the argument that no single program should be expected to be the sole determining factor in a graduate's later success. Rather, he contends that numerous background variables as well as other school and life experiences have greater total effects on such outcomes. In that regard, Welo and Copa (1981), Rohner (1983), and Richardson (1975) all found that background variables such as parent's income, socioeconomic status of family, educational levels of parents, and ability level all affect the later socioeconomic attainment of the graduate. Copa and Forsberg, (1981) found that sex and race also affected socioeconomic attainment of the graduate.

Objectives of the Study

The specific objectives of this study were to determine the following:

1. When their varying backgrounds are taken into account, are there differences in the job status attainment among

agricultural education, semi-agricultural education, and non-agricultural education high school graduates who were employed in agricultural occupations for each year from 1972 through 1979?

2. Again, when their backgrounds are accounted for, are there differences in the job status attainment among agricultural education, semi-agricultural education, and non-agricultural education high school graduates who were employed in non-agricultural occupations for each year from 1972 through 1979?

Data Collection

Collection of large scale sets of data is always expensive, particularly if the data are longitudinal in nature. To address that problem on behalf of the research community, the National Center for Educational Statistics (NCES) in the United States Department of Education maintains an ongoing effort toward the collection of such data. The National Longitudinal Study of the High School Class of 1972 (NLS72) was one result of that effort and provided the data for this study. NLS72 was a longitudinal study of a national probability sample of 23,451 high school seniors in the class of 1972 from throughout the United States. It includes over 1900 variables in a total of six surveys covering an eight year period. As in all longitudinal studies, there was some mortality in the sample; however, as a result of rather elaborate followup procedures, at the end of the fourth survey in 1979, a total of 78% of the base year respondents were still in the sample, (National Center for Educational Statistics, 1981, vol 1). Data were used for this study from a

total of 6585 graduates. This consisted of all of those respondents on whom data regarding the number of semesters of agricultural education completed were reported by school officials in the first round of surveys.

The variable of specific interest to this study was an indirectly-derived score known as Socioeconomic Index (SEI), or Duncan Scale score. The Duncan Scale is widely accepted in sociological literature as a measure of socioeconomic attainment. It is a continuous variable ranging from 3.0 to 99.0 with the higher numbers indicating greater prestige and income. On the Duncan Scale, college professors have a score of 84.0 while retail clerks have a Duncan score of 29.0, (Gordon,1984). The actual regression equation by which the Duncan Scale was constructed is SEI= .59 * Education Level + .55% * Income - 6, (Gordon,1984).

The actual occupations in which the graduates were employed in each year of the study were also reported. By examination of the reported occupations of respondents, it was possible to classify workers into either agricultural or non-agricultural occupations for each year.

Findings

Agricultural Occupations. Analyses for each year from 1972 through 1979 were completed, except for 1977 when no SEI scores were computed. Significant differences ($p<.05$) were found in 1973, 1976, and 1979. In all three years, SEI scores of non-agricultural education graduates were significantly higher than for agricultural education graduates. If no further analyses had been done, the conclusion would be that

participation in agricultural education served to the socioeconomic disadvantage of graduates for three out of seven reported years. Moreover, the greater the level of participation, the more extreme the disadvantage appeared to be.

When multiple regression analyses were run for each of the years in which significant F's were found in the ANOVA's, only in the regression analysis for 1976 did semesters of agricultural education enter the equation at $p<.05$. For that year, the beta weight for semesters of agriculture in the regression formula was B = -.17 and the coefficient was b = -3.51.

The third procedure involved the use of the Veldman formula to measure the portion of the SEI variance that was associated with the semesters of agriculture taken (Veldman, 1967). This procedure produced a Delta-R^2 of .0214 for the one year that semesters of agricultrual education significantly entered the equation. This means that only 2.14% (.0214) of the variance of the SEI variable could be attributed to participation in agricultural education and that for only one year out of the seven for which data were available.

Non-agricultural Occupations. When the respondent pool was sorted for those in non-agricultural occupations, ANOVA procedures resulted in significant F's for each year from 1972 through 1979, again excluding 1977 for which no SEI scores were reported. Thus, the initial conclusion, based on one-way analysis of variance, would be that for each year in which followups were made, socioeconomic attainment was greater for

both non-agricultural and semi-agricultural education graduates than for agricultural education graduates.

Application of multiple regression techniques to control for the effects of the background variables identified earlier produced somewhat different results. Only in the regressions for 1973, 1974, and 1979, did semesters of agriculture produce significant beta weights for the equation. In all three cases, the regression coefficients were negative on the number of semesters taken.

Use of the Veldman technique in those three instances produced Delta-R^2's of .0020, .0010, and .0014, respectively. This can be interpreted to mean that for those three years, the percentages of the variances of the SEI criterion variable associated with semesters of agriculture completed were .1%, .2%, and .14%, respectively. Again, such small proportions of the variance, although statistically significant, provide virtually nothing of practical significance in terms of prediction or explanation.

Conclusions

1. On initial analysis, participation in agricultural education appeared to affect adversely the socioeconomic attainment of graduates entering not only non-agricultural occupations but agricultural occupations as well. The results of the analysis changed dramatically when the effects of the background variables were taken into account. This finding supports earlier studies which have indicated that program evaluations cannot be based simply on graduate income levels or placement records. Such global outcomes are almost certainly

affected by the graduate's socioeconomic background, family history, type of community, sex, race, and numerous other background variables. Therefore, we conclude that agricultural education program evaluations are too complex to be addressed adequately by such simplistic analyses as straightforward examination of graduate incomes or placement records which fail to take into account the numerous other background variables that help to shape the lives of the student/graduate.

2. This study did not find evidence that agricultural education training provided its graduates with any advantage in the occupational marketplace, even when the graduates were in agricultural jobs. In fact, when differences in socioeconomic attainment were found, they were in favor of the non-agricultural education graduate. On the other hand those differences, albiet statistically signigicant, were so small as to be of no practical significance. Thus we conclude that participation in agricultural education training in high school had no practical effect, either positive or negative, on the subsequent job status attainment of graduates who entered either agricultural or non-agricultural occupations.

3. When one examines the proportion of the explained R^2 that can be attributed to the semesters of agricultural education completed, it becomes clear that practically none of the variance of the former is associated with the latter. Thus, the differences between the occupational outcomes of non-agricultural and agricultural education graduates can be attributed almost totally to socioeconomic history and other background variables rather than participation in agricultural

education courses in high school.

Importance of the Study

If agricultural education is to continue to be a viable educational program in this country, the profession must continually evaluate itself in terms of some set of reasonable criteria. One logical criterion would appear to be the occupational outcomes of graduates, measured in terms of socioeconomic attainment. Historically, studies of this nature have measured merely income or employment, have not considered the impact of background variables, or have been localized to a single state or region of the country. This study addressed the degree to which occupational attainment was associated with participation in agricultural education for graduates of the high school class of 1972 over the period 1972-1979, after taking into account the affects of selected background variables. It therefore provides a national longitudinal evaluation of the occupational outcomes of agricultural education graduates as compared to other high school graduates.

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